

REMARKS

Claims 21-40 have been canceled without prejudice or disclaimer. Claims 41-56 have been added. Claims 41-56 are supported throughout the specification, including the original claims.

The title of the invention has been amended to more accurately define the claimed invention.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

I. The Rejection of Claims 35-40 under 35 U.S.C. 112

Claims 35-40 are rejected under 35 U.S.C. 112 as being indefinite. The Office provided a number of grounds of the rejection.

First Ground:

The Office objected to claim 35 for lacking a conjunction at the end of the claim 35. Claim 35 has been rewritten as claim 41, which contains a conjunction at the end of element (d). Applicants therefore submit that this ground for the rejection has been overcome.

Second Ground:

The Office objected to claim 35 because the phrase “carbohydrate-source generating enzyme” is confusing. Specifically, the Office states that “It is apparent that the product produced or generated is a carbohydrate rather than a ‘carbohydrate source.’ This ground for the rejection is respectfully.

It is well settled that an Applicant can be his own lexicographer. The Office is correct the product generated is a carbohydrate, which is the source for the fermentation. Applicants therefore submit that the phrase “carbohydrate-source generating enzyme” is not confusing. However, in order to advance prosecution, the newly presented claims do not recite this phrase.

Third Ground:

The Office objected to claim 35 for lacking antecedent basis for “the fermentation medium”. Claim 35 has been rewritten as claim 41 to provide antecedent basis for this term. Applicants therefore submit that this ground for the rejection has been overcome.

Fourth Ground:

The Office objected to claims 35-50 as incomplete for lacking a recovery step. Claim 35 has been rewritten as claim 41 to include a recovery step. Applicants therefore submit that this ground for the rejection has been overcome.

Fifth Ground:

The Office objected to claim 40 because the recitation “a mixture of acidic fungal alpha-amylase activity (AFAU) and glucoamylase activity (AGU) had having AFAU per AGU of at least 0.1” is confusing. Claim 40 has been rewritten as claim 44 to clarify this phrase. Applicants therefore submit that this ground for the rejection has been overcome.

Sixth Ground:

The Office objected to claim 38 for being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 38 has been canceled without prejudice or disclaimer. Applicants therefore submit that this ground for the rejection has been overcome.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

II. The Rejection of Claims 35-40 under 35 U.S.C. 103

Claims 35-40 are rejected under 35 U.S.C. 103 as being unpatentable over Lee et al. (*Biotechnology Letters* 18:299-304 (1996)) taken with Silver (U.S. Patent No. 4,409,329), Miller et al. (U.S. Patent No. 4,330,625), and Bisgaard-Frantzen et al. (US 2004/0023349). This rejection is respectfully traversed.

Lee et al. and Silver disclose a process for producing ethanol from a cellulosic material, comprising hydrolyzing the cellulosic material with a cellulase to form a sugar and fermenting the sugar with a fermenting organism in a fermentation medium comprising a surfactant. See, e.g., the abstract of Lee et al. at page 299 and the abstract of Silver.

However, Lee et al. and Silver do not teach or suggest a process for producing ethanol from a starch-containing material, comprising liquefying a starch-containing material with an alpha-amylase and saccharification of the liquefied material with a glucoamylase.

Miller et al. disclose a process of producing ethanol comprising milling of grain followed by liquefaction and saccharification. Bisgaard-Frantzen et al. disclose the use of acidic fungal alpha-amylase and glucoamylase in a process to produce ethanol.

However, both Miller et al. and Bisgaard-Frantzen et al. relate to a process for producing ethanol from a starch-containing material comprising liquefaction and saccharification and do not suggest a process for producing ethanol from a cellulosic material comprising cellulose hydrolysis. Therefore, it is improper to combine Miller et al. and Bisgaard-Frantzen et al. with Lee et al. and Silver.

Moreover, Examples 1 and 3 of the instant application show that the use of a surfactant (SOFTANOL® 90 and BEROL® 087, respectively) and a glucoamylase during fermentation results in a significantly greater ethanol yield than the use of a glucoamylase alone. Moreover, Example 2 of the instant application shows that the use of a surfactant (TRITON® X100) and a glucoamylase during fermentation results in a greater ethanol yield than the use of a glucoamylase alone. Since these results are not predicted by the prior art, they are surprising and unexpected.

Moreover, Examples 1-3 of the instant application show that the use of a surfactant (SOFTANOL® 90, TRITON® X100, and BEROL® 087, respectively), a glucoamylase, and a cellulase during fermentation results in a significantly greater ethanol yield than the use of a glucoamylase and surfactant. Since these results are not predicted by the prior art, they are also surprising and unexpected.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 103. Applicants respectfully request reconsideration and withdrawal of the rejection.

III. Conclusion

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

All required fees were charged to Novozymes North America, Inc.'s Deposit Account No. 50-1701 at the time of electronic filing. The USPTO is authorized to charge this Deposit Account should any additional fees be due.

Respectfully submitted,

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